

What is Claimed is:

1. A Wavelength Division Multiplexing (WDM) system for demultiplexing mixed optical signals transmitted through one
5 channel from the outside to distribute specific wavelength optical signals into a plurality of channels, comprising:

a receiving optical fiber for receiving the mixed optical signals;

a filter arranged in an output end of the receiving optical
10 fiber for selectively transmitting a specific optical signal of a wavelength identical with the peak wavelength of the filter but reflecting remaining wavelength optical signals;

a transmitting optical fiber for outputting the specific wavelength optical signal transmitted through the filter;

15 a shutter member for attenuating the specific wavelength optical signal between the filter and the transmitting optical fiber;

an actuator for driving the shutter member across the propagation of the specific wavelength optical signal transmitted
20 through the filter; and

a control unit for controlling the actuation of the actuator.

2. The WDM system according to claim 1, wherein the filter
25 is a dielectric thin film filter.

3. The WDM system according to claim 1, wherein the shutter member is arranged opposite to an air gap which is formed between the filter and a single GRIN lens for refracting the specific wavelength optical signal transmitted through the filter.

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4. The WDM system according to claim 1, wherein the shutter member is arranged opposite to an air gap which is formed between a single GRIN lens for refracting the specific wavelength optical signal transmitted through the filter and a single pig tail for
10 fixing the transmitting optical fiber.

5. The WDM system according to claim 1, wherein the actuator is a comb drive type Micro Electro-Mechanical System (MEMS) actuator.

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6. The WDM system according to claim 1, wherein the actuator is a scratch drive type MEMS actuator.

7. The WDM system according to claim 1, wherein the actuator
20 is provided integrally in a main board having the receiving and transmitting optical fibers.

8. The WDM system according to claim 1, wherein the control unit is connected with a photodetector for measuring the intensity
25 of the specific wavelength optical signal attenuated by the

shutter member and sending the measured intensity value to the control unit.

9. A Wavelength Division Multiplexing (WDM) system for demultiplexing mixed optical signals transmitted through one channel from the outside to distribute specific wavelength optical signals into a plurality of channels, comprising:

a dual collimator having a receiving optical fiber for receiving the mixed optical signals;

10 a filter arranged in an output end of the receiving optical fiber to selectively transmit a specific wavelength optical signal of a wavelength identical with the peak wavelength thereof but reflect remaining wavelength optical signals;

a single collimator having a transmitting optical fiber for outputting the specific wavelength optical signal transmitted through the filter;

a shutter member arranged between the filter and the single collimator to attenuate the specific wavelength optical signal transmitted through the filter;

20 an Micro Electro-Mechanical System (MEMS) actuator for driving the shutter member across the propagation of the specific wavelength optical signal transmitted through the filter; and

a control unit for controlling the actuation of the actuator.

10. The WDM system according to claim 9, wherein the dual collimator includes a dual pig tail for fixing the receiving optical fiber, a dual GRIN lens attached to an output side of the dual collimator via a transparent adhesive member and a dual glass member for receiving the dual pig tail, and wherein the single collimator includes a single pig tail for fixing the transmitting optical fiber, a single GRIN lens attached to an output side of the single collimator via a transparent adhesive member and a single glass member for receiving the single pig tail.

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11. The WDM system according to claim 9, wherein the shutter member is arranged opposite to an air gap formed in an adhesive member for coaxially connecting a single GRIN lens of the single collimator with the filter.

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12. The WDM system according to claim 9, wherein the shutter member is arranged opposite to an air gap formed in an adhesive member for coaxially connecting a single GRIN lens of the single collimator with a single pig tail of the single collimator.

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13. A Wavelength Division Multiplexing (WDM) system for demultiplexing mixed optical signals transmitted through one channel from the outside to separate specific wavelength optical signals into a plurality of channels, comprising:

25 a dual collimator having a receiving optical fiber for

receiving the optical signals;

a filter provided in an output end of the receiving optical fiber and coaxially attached to an output end of the dual collimator to selectively transmit a specific wavelength optical signal of a wavelength identical with the peak wavelength thereof but reflect remaining wavelength optical signals;

a single collimator having a transmitting optical fiber for outputting the specific wavelength optical signal transmitted through the filter;

a fixing tube having dual and single glass members mounted on both ends thereof to form an air gap between the filter and the single collimator, the dual glass member receiving a dual pig tail of the dual collimator, and the single glass member receiving a single pig tail of the single collimator;

a shutter member for attenuating the specific wavelength optical signal transmitted through the air gap;

an Micro Electro-Mechanical System (MEMS) actuator for driving the shutter member across the propagation of the specific wavelength optical signal transmitted through the filter; and

a control unit for controlling the actuation of the actuator.

14. The WDM system according to claim 13, wherein the fixing tube has vent holes perforated adjacent to both ends thereof to feed curing gas through the vent holes.

15. The WDM system according to claim 13, wherein the fixing tube has an opening perforated opposite to the air gap so that the shutter member can move freely through the opening.